

ABSTRACT

A metrology/inspection system moves the imaging and/or measuring equipment of the system relative to a wafer. Accordingly, measurement or inspection of the wafer does not require that the wafer be mounted on a precision stage. This allows the wafer to be at rest on any structure native in a processing apparatus when the system measures or inspects the wafer. Accordingly, measurement does not require removing the wafer from the processing apparatus and does not delay processing since the wafer can be measured, for example, during a required cool down period of device fabrication process. Alignment of an optical system includes pre-alignment base on edge detection using the optical system and more precise alignment using image recognition. An R- $\theta$  stage can position the optical system at inspection areas on the wafer. Image rotation can provide a fixed orientation for all images at the various inspection areas and can maintain the fixed orientation when moving from one inspection area to the next.

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